111. (new). The method ~~of~~ Claim 108, wherein at least one of said first fragment and said second fragment has a label.

REMARKS

Claims 45-107 are at issue in the present Application and have been rejected by the Examiner. Claims 45-107 have been cancelled[1] and new Claims 108-111 added in order to place the case in position for interference (e.g. to define a count that encompasses all the claims of the 6,110,677 and 6,121,001 patents, and applicant's previously pending claims). Claims 108-111 have been added. Applicants present the new claims in conjunction with a Request By Applicants For Interference Pursuant to 37 CFR 1.607 wherein Applicants respectfully request than an interference be declared between the present application and U.S. Patents 6,110,677 and 6,121,001. The information required by 37 CFR 1.607(a) is set forth below under headings which correspond to the subsections of 1.607 to facilitate consideration by the Examiner. Also, even though the Examiner's previous rejections are now moot in light of cancellation of all of the pending claims, Applicants have addressed a number of the Examiner's rejections below in order to further this Application and Request for Interference.

I. Identification of the Patents Which Includes Subject Matter Which Interferes With The Present Application.

The patents which claim subject matter which interferes with subject matter claimed in the present application are U.S. Patents 6,110,677 ("the '677 patent", issued on 8/29/00 to Western et al.) and 6,121,001 (the "001 patent", issued on 9/19/00 to Western et al.). The '677 patent was issued on application Serial No. 09/015,949, filed 01/30/98, which purports on its face to be a continuation of application Serial No. 08/691,627, filed on 08/02/96, now U.S. Pat. No. 5,792,614, which in turn purports to be a continuation of Ser. No. 08/363,169, filed Dec. 23, 1994, now abandoned. The '001 patent was issued on application Serial No. 09/440,363, filed 11/15/99, which purports on its face to be a continuation of Ser. No.

[1] Claims 45-107 have been cancelled for business reasons, and in order to further the prosecution of the present Application, yet without acquiescing to any of the Examiner's arguments, and while explicitly reserving the right to prosecute the original claims (or similar claims) in the future.

09/015,949 filed Jan. 30, 1998, which purports to be a continuation of Ser. No. 08/691,627 filed Aug. 2, 1996, now U.S. Pat. No. 5,792,614, which purports on its face to be a continuation of Ser. No. 08/363,169, filed Dec. 23, 1994, now abandoned. Both the '677 and '001 patents list Dade Behring Marburg GmbH as the assignee on the face of these patents.

II. Presentation of Proposed Count

Attached Appendix A sets forth Proposed Count 1. The proposed Count encompasses all of the Independent Claims in the '677 patent and all of the Independent Claims in the '001 patent.

III. Identification of the Claims of the '677 and '001 Patents Which Correspond to the Proposed Count

All of the Claims in both the '677 and '001 patents correspond to the proposed Count. In order to assist the Examiner, Attached Appendix B sets forth a side-by-side comparison of all of the Claims of the '677 and '001 patents with the proposed Count.

IV. Claims of the Present Application Which Correspond to the Proposed Count

Newly added Claim 108 corresponds to the proposed Count. In order to further the Request for Interference, the Claim 108 is identical to the proposed Count.

V. 35 U.S.C. 135(b) Is Satisfied

While it has been more than one year since the '677 issued (issued 8/29/00), and more than one year since the '001 issued (issued 9/19/00), 35 USC 135(b) is nevertheless satisfied as Applicants copied Claims from the '001 patent in a Preliminary Amendment dated 3/15/01, and Applicants copied Claims from the '677 patent in a Preliminary Amendment dated 9/13/00. Both Preliminary Amendments were filed less than one year after the corresponding patents issued (the '001 issued 9/19/00, and the '677 issued 8/29/00). Furthermore, both Preliminary Amendments specifically state that the Claims were being copied in order to preserve the right to provoke an interference. As such, the requirements of 35 USC 135(b) have been satisfied.

VI. Full Support for Pending Claims is Provided in the Application

The pending claims find full support in the present Application.[2] In order to address the 35 USC 112 rejections in the Office Action mailed November 2, 2001, and for the Examiner's convenience, support for each element in the four pending claims is provided below in part C. Applicants disagree with the Examiner's 35 USC 112 rejections and note that the Examiner's rejections are now moot since Claims 45-107 have been cancelled. However, two of the Examiner's rejections for alleged non-support of certain elements that are present in the newly added claims are addressed below (See part A and B below) in order to further this Application and Request for Interference.

A. " 5' portion which does not hybridize"

The Examiner rejected Claims 45, 49, 56, 65, 69, 76, 79, 84, 89, 95, 101, 105, 106, and 107, arguing that the specification does not support the claim language that "the oligonucleotide has a 5' portion which does not hybridize to a polynucleotide" at pages 110 and 111 in the specification (Office Action, pg 3). Applicants disagree with this rejection and note that the previous communication pointed to pages 110 and pgs 42-43 (not page 111 as indicated by the Examiner). Looking at "page 42, line 30 - page 43, line 16" as cited by Applicants, it is clear that the specification teaches an oligonucleotide with a 5' portion that does not hybridize to a polynucleotide. For example, page 43, lines 4-7 teaches "[t]he second oligonucleotide is partially complementary to the target sequence; the 3' end of the second oligonucleotide is fully complementary to the target sequence while the 5' end is non-complementary and forms a single-stranded arm." Applicants also wish to point to Figure 16. Figure 16 clearly shows an oligonucleotide with a 5' portion that does not hybridize. As such, this rejection was erroneous.

---

[2] The present Application claims priority to a series of twenty-one applications and patents. Importantly, four of these (now issued patents) have filing dates prior to the earliest priority date claimed by the '677 and '001 patents (i.e. earlier than December 23, 1994). The four issued patents with effective filing dates prior to December 23, 1994 are: U.S. Pat. 5,719,028 (effective filing date of November 9, 1994); U.S. Pat. 5,837,450 (effective filing date of June 6, 1994); U.S. Pat. 5,541,311 (effective filing date of June 4, 1993); and U.S. Pat. 5,422,253 (effective filing date of December 7, 1992). In light of the above, it is clear that the present application should be designated as the senior party in the interference as having the earlier effective filing date.

B. "no more than one nucleotide from the 5' end of said 3'-portion"

The Examiner rejected Claims 45, 49, 61, 69, 77, and 86, arguing that the limitation that the first fragment includes no more than 1 nucleotide from the second fragment is not supported at pages 111 or at figures 1A and 12B (Office Action, pg 4). Applicants disagree. For example, figure 12B shows a picture of a gel with 27 nucleotide and 85 nucleotide fragments that include no more than 1 nucleotide from the complementary portion of this oligonucleotide. Applicants also wish to point to Figure 22A that schematically shows a cleavage site in a polynucleotide that generates a fragment (85 nucleotides in length) with only one nucleotide from the 5' end of the 3' portion. As such, the specification provides support for this limitation, and this rejection was erroneous.

C. Element by Element Support for Pending Claims and Proposed Count

Support in the current Specification for the five pending claims is provided below on an element by element basis.

Proposed Count/Claim 108. (new) A method of modifying or detecting a polynucleotide, said method comprising:

(a) providing in combination:

i) a medium suspected of containing said polynucleotide,

ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide

iii) a 5'-nuclease (for i), ii) and iii), e.g., pg 110, lines 6-11; page 42, line 30 - page 43, line 16, and Figure 16), and optionally

iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes (e.g., pg 111, lines 1-3; Figure 12B; Figure 1A; Figure 22A; and Figure 16),

(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide (e.g., pg 110, lines 13-14; and pg 111, lines 1-2) to provide: (i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion (e.g., pg 111, lines 1-3; Figure 12B; Figure 1A; Figure 22A), and (ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide (e.g., pg 111, lines 1-3; Figure 12B; page 42, lines 26-28; and Figure 1A), and optionally

(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide (e.g, page 109, line 18 - page 110, line 15; page 111, lines 1-3; page 42, lines 26-28; page 45, lines 1-3; and page 45, lines 11-23).

109. (new). The method of Claim 108, wherein said polynucleotide is from a source selected from the group consisting of viruses, bacteria, fungi, mycoplasma, and protozoan (e.g., pg 52, lines 22-23, and page 32, lines 3-5).

110. (new). The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous (e.g., page 42, lines 30 - page 43, line 16; page 43, lines 13-16; and Figures 1A and 1B).

111. (new). The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label (e.g., page 42, lines 3-5; page 33, lines 17-21; page 61, lines 19 - page 62, line 5; and page 126, lines 19-20).

VII. CONCLUSION

Applicants respectfully request that an interference be declared employing the proposed Count set forth on attached Appendix A. Such action is respectfully requested.

Dated: May 2, 2002

Jason R. Bond
Registration No. 45,439
MEDLEN & CARROLL, LLP
101 Howard Street, Suite 350
San Francisco, California 94105
608-218-6900

APPENDIX A - PROPOSED COUNT

Proposed Count:

A method of modifying or detecting a polynucleotide, said method comprising:

(a) providing in combination:

i) a medium suspected of containing said polynucleotide,

ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide,

iii) a 5'-nuclease, and optionally

iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes,

(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: (i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and (ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally

(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.

Appendix B - '677 and '001 Claims Correspond to the Proposed Count

Proposed Count	Claims of the '677 Patent
A method of modifying or detecting an oligonucleotide, said method comprising: (a) combining; i) a polynucleotide, ii) a 5' nuclease, iii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, (b) incubating said first oligonucleotide, said polynucleotide, and said 5' nuclease, under isothermal conditions, and (c) while maintaining said isothermal conditions, cleaving said first oligonucleotide with said nuclease when said 3'-portion is hybridized to said polynucleotide to provide: (i) a first fragment that is substantially non-hybridizable to said polynucleotide or a first fragment including said 5'-portion and no more than one nucleotide from the 5' end of said 3'-portion; and (ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide, thereby modifying said first oligonucleotide, and optionally (c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	1. A method for modifying an oligonucleotide, said method comprising: (a) combining said oligonucleotide with a polynucleotide and a 5'-nuclease, said oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5'-portion which does not hybridize to the polynucleotide, (b) incubating said oligonucleotide, said polynucleotide and said nuclease under isothermal conditions, whereby a duplex formed by hybridization of the 3' portion of the oligonucleotide to the polynucleotide is in equilibrium with unhybridized oligonucleotide and unhybridized polynucleotide, said isothermal conditions being at or near the melting temperature of said complex, and (c) while maintaining said isothermal conditions, cleaving said oligonucleotide with said nuclease when said 3'-portion is hybridized to said polynucleotide to provide: (i) a first fragment including said 5'-portion and no more than one nucleotide from the 5'-end of said 3'-portion, and (ii) a second fragment that is 3' of said first fragment with reference to the intact oligonucleotide, thereby modifying said oligonucleotide, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions.
... ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, ...	2. The method of claim 1, wherein the amounts of fragments that are formed are at least 100-fold larger than the amount of said polynucleotide.

... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ...	**3.** The method of claim 1, further comprising incubating a second oligonucleotide under said isothermal conditions with said oligonucleotide, said polynucleotide, and said 5'-nuclease, wherein said second oligonucleotide substantially non-reversibly hybridizes under said isothermal conditions to a site on said polynucleotide that is in the 3' direction from the site at which said oligonucleotide hybridizes.
... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ...	**4.** The method according to claim 3, wherein the melting temperature of the second oligonucleotide when hybridized to the polynucleotide is at least 3°C. higher than the melting temperature of the first oligonucleotide when hybridized to the polynucleotide.

A method of modifying or detecting an oligonucleotide, said method comprising: **(a)** combining; i) a polynucleotide, ii) a 5' nuclease, iii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, **(b)** incubating said first oligonucleotide, said polynucleotide, and said 5' nuclease, under isothermal conditions, and **(c)** while maintaining said isothermal conditions, cleaving said first oligonucleotide with said nuclease when said 3'-portion is hybridized to said polynucleotide to provide: **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide or a first fragment including said 5'-portion and no more than one nucleotide from the 5' end of said 3'-portion; and **(ii)** a second fragment that is 3' of said first fragment with reference to said first oligonucleotide, thereby modifying said first oligonucleotide, and optionally (c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**5.** A method for amplifying a signal associated with the presence of a polynucleotide analyte, said method comprising: **(a)** providing in combination a polynucleotide analyte, a 5'-nuclease and a molar excess, relative to the concentration of said polynucleotide analyte, of an oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5'-portion which does not hybridize to said polynucleotide, **(b)** under isothermal conditions, establishing an equilibrium between said oligonucleotide, said polynucleotide analyte, and a duplex formed by the hybridization of the 3' portion of said oligonucleotide with said polynucleotide analyte, said isothermal conditions being at or near the melting temperature of said duplex, **(c)** while maintaining said isothermal conditions, cleaving said oligonucleotide with said 5'-nuclease when said oligonucleotide is hybridized to said polynucleotide to provide, **(i)** a first fragment including said 5'-portion and no more than one nucleotide from the 5'-end of said 3'-portion, and **(ii)** a second fragment including at least one of said 3' portion and said 3' portion lacking one nucleotide, wherein at least one of said first fragment and said second fragment generates a signal, and **(d)** while maintaining said isothermal conditions, maintaining said equilibrium to amplify the amount of at least one of said first fragment and said second fragment and thereby amplifying said signal, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions.
... ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, ...	**6.** The method of claim 5 further comprising maintaining said equilibrium until at least a 100-fold molar excess of said first fragment and/or said second fragment are obtained relative to the molar amount of said polynucleotide analyte.

... (a) combining; i) a polynucleotide ... See, also, dependent Claim 109: 109. The method of Claim 108, wherein said polynucleotide is from a source selected from the group consisting of viruses, bacteria, fungi, mycoplasma, and protozoan.	**7.** The method of claim 5 wherein said polynucleotide analyte is from a source selected from the group consisting of Corynebacteria, Pneumococci, Streptococci, Staphylococci, Neisseria, Enterobacteriaciae, Enteric bacilli, Hemophilus-Bordetella, Pasteurellae, Brucellae, Aerobic Spore-forming Bacilli, Anaerobic Spore-forming Bacilli, Mycobacteria, Actinomycetes, Spirochetes, Trypanasomes, Mycoplasmas, Listeria monocytogenes, Erysipelothrix rhusiopathiae, Streptobaccillus moniliformis, Donvania granulomatis, Bartonella bacilliformis, Rickettsiae, Adenoviruses, Herpes Viruses, Pox Viruses, Picornaviruses, Myxoviruses, Arboviruses, Reoviruses, Retroviruses, Fungi, Hepatitis Viruses, and Tumor Viruses.
... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ...	**8.** The method of claim 5, further comprising hybridizing a second oligonucleotide to said polynucleotide analyte under said isothermal conditions, wherein said second oligonucleotide hybridizes to a site on said polynucleotide analyte that is in the 3' direction of the site at which said oligonucleotide hybridizes, and wherein the melting temperature of the second oligonucleotide when hybridized to the polynucleotide is at least 3° C higher than the melting temperature of the first oligonucleotide when hybridized to the polynucleotide.
... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**9.** The method of claim 5, wherein said oligonucleotide hybridization sites are contiguous.
A method of modifying or detecting an oligonucleotide, said method comprising: ... **(i)** a first fragment ... ; and **(ii)** a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**10.** The method of claim 5, wherein at least one of said first fragment and said second fragment has a label. **11.** The method of claim 10, wherein said label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups, and suspendible particles.

A method of modifying or detecting a polynucleotide, said method comprising:	**12.** A method for detecting a polynucleotide analyte, said method comprising:
(a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes,	**(a)** providing in combination a medium suspected of containing said polynucleotide analyte, a molar excess, relative to the suspected concentration of said polynucleotide analyte, of a first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5'-portion which does not hybridize to said polynucleotide, a 5'-nuclease, and a second oligonucleotide that hybridizes to a site on said polynucleotide analyte in the 3'-direction of the site at which said first oligonucleotide hybridizes,
(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide,	**(b)** under isothermal conditions, establishing an equilibrium between a complex formed by the hybridization of the 3' portion of said first oligonucleotide and said polynucleotide analyte, said polynucleotide analyte and said first oligonucleotide, said isothermal conditions being at or near the melting temperature of said complex, and wherein said second oligonucleotide is substantially fully hybridized to said polynucleotide analyte under said isothermal conditions,
is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide:	(c) while maintaining said isothermal conditions, cleaving said first oligonucleotide when hybridized to said polynucleotide analyte with said 5'-nuclease to provide,
(i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and	**(i)** a first fragment that is substantially non-hybridizable to said polynucleotide analyte, and
(ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally	**(ii)** a second fragment that is 3' of said first fragment in said first oligonucleotide and which substantially hybridizes to said polynucleotide analyte; and
(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**(d)** while maintaining said isothermal conditions, detecting the presence of said first fragment, said second fragment, or said first fragment and said second fragment, the presence thereof indicating the presence of said polynucleotide analyte wherein said first fragment and said second fragment are continuously produced under said isothermal conditions.

... providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide ... , and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ...	**13.** The method according to claim 12, wherein the melting temperature of the second oligonucleotide when hybridized to the polynucleotide is at least 3°C higher than the melting temperature of the first oligonucleotide when hybridized to the polynucleotide.
A method of modifying or detecting an oligonucleotide, said method comprising: ... **(i)** a first fragment ... ; and **(ii)** a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**14.** The method of claim 12, wherein said first fragment and/or said second fragment has a label. **15.** The method of claim 14, wherein said label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups, and suspendible particles.
... a medium suspected of containing said polynucleotide ...	**16.** The method of claim 12 wherein said polynucleotide analyte is DNA.
... a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion,	**17.** The method of claim 12, wherein said first fragment includes no more than 1 nucleotide from the 5'-end of that portion of said first oligonucleotide that is capable of hybridizing to said polynucleotide analyte.
... providing in combination ... iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**18.** The method of claim 12, wherein said second oligonucleotide hybridizes to said polynucleotide at a site contiguous with the site on said polynucleotide at which said first oligonucleotide hybridizes.
A method of modifying or detecting a polynucleotide, said method comprising: ... **(i)** a first fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**19.** The method of claim 12, wherein said first oligonucleotide has a substituent that facilitates separation of said first fragment or said second fragment from said medium.

... providing in combination: i) a medium suspected of containing said polynucleotide, ... See, also, dependent Claim 109: 109. The method of Claim 108, wherein said polynucleotide is from a source selected from the group consisting of viruses, bacteria, fungi, mycoplasma, and protozoan.	**20.** The method of claim 12 wherein said polynucleotide analyte is from a source selected from the group consisting of Corynebacteria, Pneumococci, Streptococci, Staphylococci, Neisseria, Enterobacteriaciae, Enteric bacilli, Hemophilus-Bordetella, Pasteurellae, Brucellae, Aerobic Spore-forming Bacilli, Anaerobic Spore-forming Bacilli, Mycobacteria, Actinomycetes, Spirochetes, Trypanasomes, Mycoplasmas, Listeria monocytogenes, Erysipelothrix rhusiopathiae, Streptobaccillus moniliformis, Donvania granulomatis, Bartonella bacilliformis, Rickettsiae, Adenoviruses, Herpes Viruses, Pox Viruses, Picornaviruses, Myxoviruses, Arboviruses, Reoviruses, Retroviruses, Fungi, Hepatitis Viruses, and Tumor Viruses.

A method of modifying or detecting a polynucleotide, said method comprising:	**21.** A method for detecting a polynucleotide analyte, said method comprising:
(a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes,	**(a)** providing in combination a medium suspected of containing said polynucleotide analyte, a first oligonucleotide at least a portion of which reversibly hybridizes with said polynucleotide analyte under isothermal conditions to form a complex, said isothermal conditions being at or near the melting temperature of said complex, a 5'-nuclease, and a second oligonucleotide that hybridizes to a site on said polynucleotide analyte that is in 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, wherein the melting temperature of the second oligonucleotide when hybridized to the polynucleotide is at least 3° C higher than the melting temperature of the first oligonucleotide when hybridized to the polynucleotide,
(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide:	**(b)** reversibly hybridizing under said isothermal conditions said polynucleotide analyte and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide analyte, is cleaved by said 5'-nuclease as a function of the presence of said polynucleotide analyte to provide, in at least a 100-fold molar excess of said polynucleotide analyte,
(i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and	**(i)** a first fragment that is substantially non-hybridizable to said polynucleotide analyte, and
(ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally	**(ii)** a second fragment that is 3' of said first fragment in said first oligonucleotide and which substantially hybridizes to said polynucleotide analyte; and
(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**(c)** detecting the presence of said first fragment, said second fragment, or said first fragment and said second fragment, the presence thereof indicating the presence of said polynucleotide analyte, wherein said polynucleotide analyte is from a source selected from the group consisting of Corynebacteria, Pneumococci, Streptococci, Staphylococci, Neisseria, Enterobacteriaciae, Enteric bacilli, Hemophilus-Bordetella, Pasteurellae, Brucellae, Aerobic Spore-forming Bacilli, Anaerobic Spore-forming Bacilli, Mycobacteria, Actinomycetes, Spirochetes, Trypanasomes, Mycoplasmas, Listeria monocytogenes, Erysipelothrix rhusiopathiae, Streptobaccillus moniliformis, Donvania granulomatis, Bartonella bacilliformis, Rickettsiae, Adenoviruses, Herpes Viruses, Pox Viruses, Picornaviruses,
See, also, dependent Claim 109:	
109. The method of Claim 108, wherein said polynucleotide is from a source selected from the group consisting of viruses, bacteria, fungi, mycoplasma, and protozoan.	

A method of modifying or detecting an oligonucleotide, said method comprising: ... **(i)** a first fragment ... ; and **(ii)** a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**22.** The method of claim 21, wherein at least one of said first fragment and said second fragment has a label. **23.** The method of claim 22, wherein said label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups, and suspendible particles.
... providing in combination: i) a medium suspected of containing said polynucleotide, ...	**24.** The method of claim 22, wherein said polynucleotide analyte is DNA.

Corresp nding Pr posed Count	Claims f the '001 Patent
A method of modifying or detecting an oligonucleotide, said method comprising: **(a)** combining; i) a polynucleotide, ii) a 5' nuclease, iii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, (b) incubating said first oligonucleotide, said polynucleotide, and said 5' nuclease, under isothermal conditions, and **(c)** while maintaining said isothermal conditions, cleaving said first oligonucleotide with said nuclease when said 3'-portion is hybridized to said polynucleotide to provide: **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide or a first fragment including said 5'-portion and no more than one nucleotide from the 5' end of said 3'-portion; **(ii)** a second fragment that is 3' of said first fragment with reference to said first oligonucleotide, thereby modifying said first oligonucleotide, and optionally **(c)** detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**1.** A method for modifying an oligonucleotide, the method comprising incubating under isothermal conditions the oligonucleotide, a polynucleotide, and a nuclease, wherein the oligonucleotide and the polynucleotide form a complex comprising said oligonucleotide and said polynucleotide in which at least a portion of the oligonucleotide is hybridized to the polynucleotide, wherein the isothermal conditions are at or near the melting temperature of the complex and wherein the oligonucleotide, when the portion is hybridized to the polynucleotide, is cleaved by the nuclease to provide **(i)** a first fragment that is substantially non-hybridizable to the polynucleotide and includes no more than five nucleotides from the 5'-end of the portion and **(ii)** a second fragment that is 3' of the first fragment with reference to the intact oligonucleotide and is substantially hybridizable to the polynucleotide, thereby modifying said oligonucleotide, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions.
... ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, ...	**2.** The method of claim 1 wherein the amounts of fragments that are formed are at least 100-fold larger than the amount of the polynucleotide.
... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ...	**3.** The method of claim 1 wherein a second oligonucleotide is present during the incubating, wherein the second oligonucleotide hybridizes to a site on the polynucleotide that is in the 3' direction from the site at which the oligonucleotide is hybridized and wherein the second oligonucleotide is substantially non-reversibly hybridized to the polynucleotide under the isothermal conditions.

... combining; ..., and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**4.** The method of claim 3 wherein the second oligonucleotide hybridizes to the polynucleotide at a site contiguous with the site on the polynucleotide at which the oligonucleotide hybridizes.
... ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, ...	**5.** The method of claim 4 wherein the amounts of fragments that are formed are at least 100-fold larger than the amount of the polynucleotide.

A method of modifying or detecting a polynucleotide, said method comprising:	**6.** A method for detecting a polynucleotide analyte, which comprises:
(a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes,	**(a)** forming a mixture comprising a sample suspected of containing a polynucleotide analyte, an oligonucleotide and a nuclease,
(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide:	**(b)** incubating the mixture at a temperature at which the oligonucleotide reversibly hybridizes to the polynucleotide analyte, wherein the oligonucleotide has a 5' portion which does not substantially hybridizes with the polynucleotide analyte at said temperature and a 3' portion which substantially hybridizes with the polynucleotide analyte at said temperature, thereby forming a polynucleotide complex comprising at least the polynucleotide analyte and the oligonucleotide, wherein the complex serves as a substrate for the nuclease, and wherein during said incubating the nuclease cleaves the oligonucleotide when the oligonucleotide is hybridized to the polynucleotide analyte to continuously produce
(i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and	**(i)** a first fragment that is substantially non-hybridizable to the polynucleotide analyte and includes no more than five nucleotides from the 5'-end of the portion which substantially hybridizes to the polynucleotide analyte, and
(ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally	**(ii)** a second fragment that is 3' of the first fragment with reference to the intact oligonucleotide and is substantially hybridizable to the polynucleotide analyte, and
(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**(c)** detecting the presence of the first fragment, the second fragment, or the first and second fragments, the presence thereof indicating the presence of the polynucleotide analyte.

A method of modifying or detecting an oligonucleotide, said method comprising: ... **(i)** a first fragment ... ; and **(ii)** a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**7.** The method of claim 6 wherein at least one of the first fragment and the second fragment has a label.
... **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and ...	**8.** The method of claim 6 wherein the first fragment includes no more than one nucleotide from the 5'-end of the portion of the oligonucleotide that substantially hybridizes to the polynucleotide analyte.
... **(a)** providing in combination: ... iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, ...	**9.** The method of claim 6 wherein the mixture further comprises a second oligonucleotide that substantially fully hybridizes to a site on the polynucleotide analyte that is in the 3' direction from the site at which the oligonucleotide hybridizes and wherein the second oligonucleotide is substantially fully hybridized to the polynucleotide analyte at the temperature.
... providing in combination ... iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**10.** The method of claim 9 wherein the second oligonucleotide hybridizes to the polynucleotide analyte at a site contiguous with the site on the polynucleotide analyte at which the oligonucleotide hybridizes.

A method of modifying or detecting a polynucleotide, said method comprising: (a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, (b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: (i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and (ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally (c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**11.** A method for detecting a polynucleotide analyte, the method comprising: (a) providing in combination a medium suspected of containing the polynucleotide analyte, a molar excess, relative to the suspected concentration of the polynucleotide analyte, of a first oligonucleotide at least a portion of which is reversibly hybridizes with the polynucleotide analyte under isothermal conditions, a 5'-nuclease, and a second oligonucleotide that hybridizes to a site on the polynucleotide analyte that is in the 3' direction of the site at which the first oligonucleotide reversibly hybridizes wherein the polynucleotide analyte is substantially fully hybridized to the second oligonucleotide under the isothermal conditions, (b) reversibly hybridizing under the isothermal conditions the polynucleotide analyte and the first oligonucleotide, wherein the first oligonucleotide, when hybridized to the polynucleotide analyte, is cleaved by the 5'-nuclease as a result of the presence of the polynucleotide analyte to provide, in at least a 100-fold molar excess of the polynucleotide analyte, (i) a first fragment that is substantially non-hybridizable to the polynucleotide analyte and (ii) a second fragment that is 3' of the first fragment with reference to the intact first oligonucleotide and is substantially hybridizable to the polynucleotide analyte, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions, and (c) detecting the presence of the first fragment, the second fragment, or the first and second fragments, the presence thereof indicating the presence of the polynucleotide analyte.
A method of modifying or detecting an oligonucleotide, said method comprising: ... (i) a first fragment ... ; and (ii) a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**12.** The method of claim 11 wherein the first fragment and/or the second fragment has a label. **13.** The method of claim 12 wherein the label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups and suspendible particles.

... providing in combination: i) a medium suspected of containing said polynucleotide,	**14.** The method of claim 11 wherein the polynucleotide analyte is DNA.
A method of modifying or detecting a polynucleotide, said method comprising: ... (i) a first fragment ...	**15.** The method of claim 11 wherein the first fragment includes no more than 5 nucleotides from the 5'-end of the portion of the first oligonucleotide that is reversibly hybridizes to the polynucleotide analyte.
... providing in combination ... iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**16.** The method of claim 11 wherein the second oligonucleotide hybridizes to the polynucleotide analyte at a site contiguous with the site on the polynucleotide analyte at which the first oligonucleotide reversibly hybridizes.

A method of modifying or detecting a polynucleotide, said method comprising: (a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, (b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: (i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and (ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally (c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**17.** A method for detecting a DNA analyte, the method comprising: **(a)** providing in combination a medium suspected of containing the DNA analyte, a first oligonucleotide at least a portion of which reversibly hybridizes with the DNA analyte under isothermal conditions, a 5' nuclease, and a second oligonucleotide that hybridizes to a site on the DNA analyte that is in the 3' direction from the site at which the first oligonucleotide reversibly hybridizes wherein the DNA analyte is substantially fully hybridized to the second oligonucleotide under the isothermal conditions, **(b)** reversibly hybridizing the DNA analyte and the first oligonucleotide under the isothermal conditions, wherein the first oligonucleotide, when hybridized to the DNA analyte, is cleaved by the 5'-nuclease to provide **(i)** a first fragment that is substantially non-hybridizable to the DNA analyte and **(ii)** a second fragment that is 3' of the first fragment with reference to the intact first oligonucleotide and is substantially hybridizable to the DNA analyte, wherein at least a 100-fold molar excess, relative to the DNA analyte, of the first fragment and/or the second fragment is produced, and wherein said first fragment and said second fragment are continuously produced under said isothermal conditions, and **(c)** detecting the presence of the first fragment, the second fragment, or the first and second fragments, the presence thereof indicating the presence of the DNA analyte.
A method for detecting a polynucleotide, said method comprising: ... (i) a first fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**18.** The method of claim 17 wherein the first oligonucleotide has a substituent that facilitates separation of the first fragment or the second fragment from the medium.

A method of modifying or detecting an oligonucleotide, said method comprising: ... (i) a first fragment ... ; and (ii) a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**19.** The method of claim 17 wherein first fragment and/or second fragment has a label. **20.** The method of claim 19 wherein the label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups and suspendible particles.
... providing in combination ... iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of the site at which said first oligonucleotide hybridizes, ... See, Also, Claim 110: 110. The method of Claim 108, wherein said oligonucleotide hybridization sites are contiguous.	**21.** The method of claim 17 wherein the second oligonucleotide hybridizes to the DNA analyte at a site contiguous with the site on the DNA analyte at which the first oligonucleotide reversibly hybridizes.
... providing in combination: i) a medium suspected of containing said polynucleotide, ...	**22.** The method of claim 17 wherein the first oligonucleotide and/or the second oligonucleotide is DNA.

A method of modifying or detecting a polynucleotide, said method comprising: **(a)** providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, **(b)** reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and **(ii)** a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally **(c)** detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**23.** A method for detecting a polynucleotide analyte, the method comprising: **(a)** providing in combination a medium suspected of containing the polynucleotide analyte, a first DNA oligonucleotide at least a portion of which reversibly hybridizes with the polynucleotide analyte under isothermal conditions, a 5'-nuclease, and a second DNA oligonucleotide that hybridizes to a site on the polynucleotide analyte that is 3' of, and contiguous with, the site at which the first DNA oligonucleotide, reversibly hybridizes, wherein the polynucleotide analyte is substantially fully hybridized to the second DNA oligonucleotide under the isothermal conditions, **(b)** reversibly hybridizing under the isothermal conditions the polynucleotide analyte and the first DNA oligonucleotide, wherein the first DNA oligonucleotide, when hybridized to the polynucleotide analyte, is cleaved by the 5'-nuclease as a result of the presence of the polynucleotide analyte to provide, in at least a 100-fold molar excess of the polynucleotide analyte, **(i)** a first fragment that is substantially non-hybridizable to the polynucleotide analyte and/or **(ii)** a second fragment that is 3' of the first fragment with reference to the intact first DNA oligonucleotide and is substantially hybridizable to the polynucleotide analyte, wherein said first fragment and/or said second fragment is/are continuously produced under said isothermal conditions, and **(c)** detecting the presence of the first fragment, the second fragment, or the first and second fragments, the presence thereof indicating the presence of the polynucleotide analyte.
A method of modifying or detecting an oligonucleotide, said method comprising: ... **(i)** a first fragment ... ; and **(ii)** a second fragment ... See Also, Claim 111: 111. The method of Claim 108, wherein at least one of said first fragment and said second fragment has a label.	**24.** The method of claim 23 wherein the first fragment and/or the second fragment has a label. **25.** The method of claim 24 wherein the label is selected from the group consisting of a member of a specific binding pair, dyes, fluorescent molecules, chemiluminescers, coenzymes, enzyme substrates, radioactive groups and suspendible particles.

... providing in combination: i) a medium suspected of containing said polynucleotide, ...	**26.** The method of claim 23 wherein the polynucleotide analyte is DNA.
A method of modifying or detecting a polynucleotide, said method comprising: **(a)** providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, **(b)** reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and **(ii)** a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally **(c)** detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**27.** A method for modifying an oligonucleotide, the method comprising incubating the oligonucleotide with a polynucleotide and a 5'-nuclease under isothermal conditions, wherein at least a portion of the oligonucleotide reversibly hybridizes to the polynucleotide under said isothermal conditions and wherein the oligonucleotide, when the portion is hybridized to the polynucleotide, is cleaved by the 5'-nuclease to provide (i) a first fragment that is substantially non-hybridizable to the polynucleotide and includes no more than five nucleotides from the 5'-end of the portion and (ii) a second fragment that is 3' of the first fragment with reference to the intact oligonucleotide and is substantially hybridizable to the polynucleotide, thereby modifying said oligonucleotide, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions.

A method of modifying or detecting a polynucleotide, said method comprising: **(a)** providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes, **(b)** reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide: **(i)** a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and **(ii)** a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally **(c)** detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**28.** A method for producing oligonucleotide cleavage products from an enzyme catalyzed cleavage of the oligonucleotide, the method comprising: **(a)** combining, in any order, a polynucleotide, an oligonucleotide having a 3'-portion which substantially hybridizes with the polynucleotide and a 5' portion which does not substantially hybridize with the polynucleotide, and a nuclease, wherein the oligonucleotide, when hybridized to the polynucleotide, forms a polynucleotide complex comprising at least the polynucleotide and the oligonucleotide, the complex serving as a substrate for the nuclease, **(b)** incubating the oligonucleotide, the polynucleotide and the nuclease at a temperature at which the oligonucleotide reversibly hybridizes to the polynucleotide, wherein the nuclease cleaves the oligonucleotide when the oligonucleotide is hybridized to the polynucleotide to continuously produce at said temperature **(i)** a first fragment that is substantially non-hybridizable to the polynucleotide and includes no more than 5 nucleotides from the 5'-end of the portion which substantially hybridizes to the polynucleotide, and **(ii)** a second fragment that is 3' of the first fragment with reference to the intact oligonucleotide and is substantially hybridizable to the polynucleotide, thereby producing oligonucleotide cleavage products.

A method of modifying or detecting a polynucleotide, said method comprising:	**29.** A method for detecting a polynucleotide analyte, which comprises:
(a) providing in combination: i) a medium suspected of containing said polynucleotide, ii) a first oligonucleotide or a molar excess of said first oligonucleotide relative to the concentration of said polynucleotide, with said first oligonucleotide having a 3' portion capable of reversibly hybridizing to said polynucleotide and a 5' portion which does not hybridize to said polynucleotide, iii) a 5'-nuclease, and optionally iv) a second oligonucleotide that hybridizes to a site on said polynucleotide that is 3' of, and contiguous with, the site at which said first oligonucleotide hybridizes,	**(a)** reversibly hybridizing an oligonucleotide with a polynucleotide analyte and a 5'-nuclease under isothermal conditions wherein the polynucleotide analyte serves as a recognition element to enable the 5'-nuclease to cleave the oligonucleotide to provide
(b) reversibly hybridizing under said isothermal conditions said polynucleotide and said first oligonucleotide, wherein said first oligonucleotide, when hybridized to said polynucleotide, is cleaved by said 5'-nuclease as a result of the presence of said polynucleotide to provide:	
(i) a first fragment that is substantially non-hybridizable to said polynucleotide, or a first fragment including said 5' portion and no more than one nucleotide from the 5' end of said 3' portion, and	**(1)** a first fragment that is substantially non-hybridizable to the polynucleotide analyte, and
(ii) a second fragment that is 3' of said first fragment with reference to said first oligonucleotide and is substantially hybridizable to said polynucleotide, and optionally	**(ii)** a second fragment that lies 3' of the first fragment with reference to the intact oligonucleotide and is substantially hybridizable to the polynucleotide analyte, wherein at least a 100-fold molar excess of the first fragment and/or the second fragment are obtained relative to the molar amount of the polynucleotide analyte, wherein said first fragment and said second fragment are continuously produced under said isothermal conditions, and
(c) detecting the presence of said first fragment, said second fragment, or said first and second fragments, the presence thereof indicating the presence of said polynucleotide.	**(b)** detecting the presence of the first fragment, the second fragment, or the first and second fragments, the presence thereof indicating the presence of the polynucleotide analyte.